

Climate Pollution Reduction Grants: GHG Inventory 101 for Tribes and Territories

June 21, 2023

Welcome

Housekeeping Notes:

- Mics are automatically muted for all registrants and all cameras should be turned off.
- Links to additional resources will be provided in the Chat during the presentations.
- Please enter all questions in the Q&A tab at the TOP of the screen. Questions will be answered during the Q&A session (*Reserved for Grantees*).
- We encourage you to answer the poll questions which will pop-up periodically throughout the training (*Reserved for Grantees*).
- Slides will be shared after the training.
- A recording will be posted to the website for those who were unable to attend.

Disclaimer

The information contained in this presentation is intended for the sole purpose of providing technical assistance to planning grant recipients under EPA's Climate Pollution Reduction Grants (CPRG) program. The presentation describes legally binding requirements that govern the use and management of CPRG resources. This presentation does not substitute for binding requirements, and does not expressly or implicitly create, expand, or limit any legal rights, obligations, responsibilities, expectations, or benefits to any person.

In the event of a conflict between the discussion in this presentation and any legally binding requirement, this presentation document would not be controlling. Specific questions on how this information relates to a particular grantee's deliverables should be directed to that grantee's EPA Project Officer.

CPRG Inventory 101 Training

- CPRG GHG Inventory Requirements for Tribes and Territories
- GHG Inventory 101
 - What is an Inventory
 - What to Include
 - Estimation Methods
 - Selecting Base Years
- Tools and Resources
 - EPA's Tribal GHG Inventory Tool
 - National Emissions Inventory
 - Greenhouse Gas Reporting Program

CPRG Requirements

CPRG Requirements – GHG Inventory

Priority Climate Action Plan (PCAP) Due: March 1, 2024	Comprehensive Climate Action Plan (CCAP) Due: at close of grant period
Simplified inventory. Using existing data, including from previously published inventories, US GHG Reporting Program, or National Emissions Inventory is acceptable.	A comprehensive inventory must include all relevant GHG emissions and sinks by emission source and sink category following commonly accepted protocols for the following sectors: industry, electricity generation and/or use, transportation, commercial and residential buildings, agriculture, natural and working lands, and waste and materials management.

EPA is not requiring a specific base year; inventory years should be chosen based on availability of underlying data and to support development of GHG targets.

CPRG Requirements – GHG Emissions Projections

Priority Climate Action Plan (PCAP) Due: March 1, 2024	Comprehensive Climate Action Plan (CCAP) Due: at close of grant period
Not Required	Near-term (e.g., 2030-2035) and long-term (e.g., 2050) projections of GHG emissions are required to be included in the CCAP. This element includes projections of GHG emissions (and sinks, if feasible) in the absence of plan measures (e.g., a “business-as-usual” projection), and a projection of GHG emissions under a scenario where the plan is fully implemented. The inclusion of sector-based projections is strongly recommended (e.g., establishing a separate GHG emissions projection for transportation, electricity generation, commercial and residential buildings, industry, agriculture, and waste and materials management).

GHG Inventory 101

What is a GHG Inventory?

- A greenhouse gas inventory is a historical accounting of the amount of greenhouse gases emitted to, or removed from, the atmosphere over a specific period of time (e.g., one year) from all various activities across the economy
- A Tribal/Territory-level GHG inventory documents the activities that cause GHG emissions and removals within Tribal/Territory control/boundaries
- GHGs are emitted and sequestered from a variety of categories, and the magnitude of emissions and/or sinks for each category varies depending on economic and other state circumstances

What Should be Included

- Comprehensive or economy-wide [anthropogenic] estimates [*PCAP may be streamlined*]
- Cover primary GHGs (CO₂, CH₄, N₂O, HFCs, PFCs, SF₆, and NF₃)
- Developing a time-series can be useful for tracking trends and progress toward goals
- Report in CO₂ equivalent units to facilitate comparison of gases and aggregation of emissions and sinks
 - EPA GHG data uses 100-year GWPs from IPCC Fifth Assessment Report (AR5) per international reporting standards
- Consider how best to include direct vs. indirect emissions

What are Direct and Indirect Emissions?

- Direct Emissions (aka scope 1)
 - Emissions that are released from activities within the inventory boundary
 - Fossil fuel combustion
 - Fertilizer application
 - Landfill operation
- Indirect Emissions (aka scope 2 and 3)
 - Emissions that occur outside a boundary because of activity or demand within the boundary
 - Purchased electricity (scope 2)
 - Off-site waste disposal
 - Lifecycle related emissions
- Often, inventories are oriented around authority and ability to impact emissions
 - e.g. include direct emissions from a tribally-owned power plant; but not from a private power plant within your boundaries that you don't control (instead, include indirect emissions from purchased power)

Electricity Related Emissions (Scope 2)

- Regional vs Utility Emissions Factors
 - Standard practice: use a regional (eGRID region) emissions factor in order to account for the workings of the electricity market
 - In some cases, utilities publish a utility specific emissions factor that accounts for their generation, sales, and purchases of electricity
- Renewable Energy Purchases
 - Location-based method does not account for contractual agreements to buy green power/RECS
 - already part of the regional grid factor so this would be double counting
 - Location-based method is required by most reporting protocols
 - Market-based method allows entities to account for contractual purchases of renewables and can be reported along with the location-based total

Estimation Methods

- Several approaches, and choice depends on availability of data and nature of source/sink determines method to ensure transparent, representative emissions, for example:
 - Emissions Factor (EF) *activity data (AD)
 - e.g., emissions = (emissions/unit of fuel consumption)* fuel consumption
 - Aggregation of facility level or site-specific emissions data
 - e.g., use of annual GHGRP data for MSW landfills
 - Emissions modeling
 - useful for characterizing complex systems with multiple variable and time dependencies (e.g., Agricultural Soil Management, use of ODS substitutes)
- Based on widely accepted methodological frameworks

Selecting a Base Year

- CPRG Guidance does not specify a base year to use
- Considerations
 - Do you have goals or targets that specify base years?
 - Do significant programs and policies that reduce emissions include base years?
 - Are there anomalies present in the base year (uncharacteristically high or low emissions)?
 - Will a base year provide needed information to evaluate GHG measures?
 - Will the base year be compatible with base years being used elsewhere?
 - **Is the data available?**

Choose a base year that is realistic and meets your specific needs

Tools and Resources

EPA's Tribal GHG Inventory Tool

- Excel based
- Divided into 2 modules, can be used independently
 - Government Operations Module (not required for CPRG)
 - Community-Wide Module
- Designed to be flexible to the needs and constraints of different governments
 - data can be entered at any scale: municipal, county, or MSA-wide
 - default emissions factors are provided, but can be over-written with location-specific factors
 - customize year of inventory
- Access the tool and a recorded training [here](#)

Community Module

- Based on *Global Protocol for Community-Scale GHG Emissions*, version 0.9
- Covers nine sectors of community-scale emissions:
 - Stationary Fossil Fuel Combustion
 - Mobile Fossil Fuel Combustion
 - Solid Waste Management
 - Wastewater Treatment
 - Electricity Consumption
 - Agriculture & Land Management
 - Forestry
 - Waste Generation (offsite disposal)
 - Water Use (offsite supply/treatment)
 - Additional Sources

Scope 1

Scope 2

Scope 3

Planned Updates and Resources

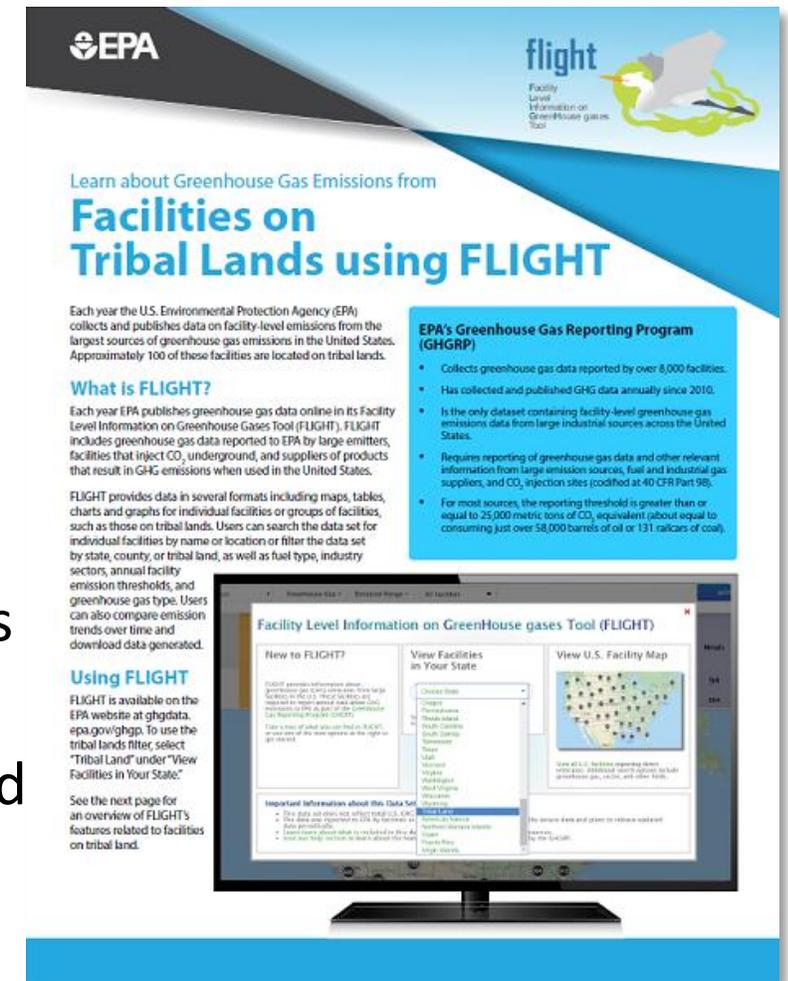
- June: updated electricity emissions factors and GWPs
- June/July: guidance on accessing and using federal data; data template tool
- July/August: Quick Start guide

EPA's National Emissions Inventory (NEI)

- Nationwide compilation of criteria air pollutants (CAPs), precursors to CAPs, and hazardous air pollutants (HAPs) emissions estimates. In addition, the NEI houses GHG emissions for select sectors.
 - County- and facility-level data can be filtered and extracted using the [2020 NEI Data Retrieval Tool](#).
- GHGs in the 2020 NEI include:
 - Facility totals for select point sources from the GHGRP (CO₂, CH₄, N₂O, SF₆).
 - Facility totals from state, locality, and tribal submissions.
 - CO₂ from airports and CO₂, CH₄, and N₂O from railyards.
 - Mobile source GHGs by county/process:
 - Onroad and nonroad from MOVES (CO₂, CH₄; Onroad includes N₂O).
 - Locomotives (CO₂, CH₄, N₂O) and Commercial Marine Vessels (CO₂).
 - Wildfires and prescribed burning by county (CO₂, CH₄).

Greenhouse Gas Reporting Program (GHGRP)

- Each year, EPA's GHGRP collects and publishes data on facility-level emissions from large sources of GHG emissions in the United States.
- [Facility Level Information on Greenhouse Gases Tool \(FLIGHT\)](#) is an interactive website to explore sources of GHG emissions.
- FLIGHT includes a mapping layer that displays all facilities reporting to the GHGRP on tribal lands.
- Users can customize their search by filtering by tribal land or other data field.
- [Facilities on Tribal Lands using FLIGHT Fact Sheet](#)



The graphic features the EPA logo and the FLIGHT logo (Facility Level Information on Greenhouse gases Tool) with a stylized globe. The main title is "Learn about Greenhouse Gas Emissions from Facilities on Tribal Lands using FLIGHT".

Learn about Greenhouse Gas Emissions from Facilities on Tribal Lands using FLIGHT

Each year the U.S. Environmental Protection Agency (EPA) collects and publishes data on facility-level emissions from the largest sources of greenhouse gas emissions in the United States. Approximately 100 of these facilities are located on tribal lands.

What is FLIGHT?

Each year EPA publishes greenhouse gas data online in its Facility Level Information on Greenhouse Gases Tool (FLIGHT). FLIGHT includes greenhouse gas data reported to EPA by large emitters, facilities that inject CO₂ underground, and suppliers of products that result in GHG emissions when used in the United States.

FLIGHT provides data in several formats including maps, tables, charts and graphs for individual facilities or groups of facilities, such as those on tribal lands. Users can search the data set for individual facilities by name or location or filter the data set by state, county, or tribal land, as well as fuel type, industry sectors, annual facility emission thresholds, and greenhouse gas type. Users can also compare emission trends over time and download data generated.

Using FLIGHT

FLIGHT is available on the EPA website at ghgdata.epa.gov/ghgp. To use the tribal lands filter, select "Tribal Land" under "View Facilities in Your State."

See the next page for an overview of FLIGHT's features related to facilities on tribal land.

EPA's Greenhouse Gas Reporting Program (GHGRP)

- Collects greenhouse gas data reported by over 8,000 facilities.
- Has collected and published GHG data annually since 2010.
- Is the only dataset containing facility-level greenhouse gas emissions data from large industrial sources across the United States.
- Requires reporting of greenhouse gas data and other relevant information from large emission sources, fuel and industrial gas suppliers, and CO₂ injection sites (codified at 40 CFR Part 98).
- For most sources, the reporting threshold is greater than or equal to 25,000 metric tons of CO₂ equivalent (about equal to consuming just over 58,000 barrels of oil or 131 railcars of coal).



The screenshot shows the FLIGHT web application interface. It includes a navigation menu, a search bar, and several panels: "New to FLIGHT?", "View Facilities in Your State" (with a dropdown menu for state selection), "View U.S. Facility Map" (with a map of the United States), and "Important Information about this Data Set".

GHGRP – FLIGHT Tribal Lands Mapping Layer

If not already selected, select "Tribal Land" and click "apply search."

To view a specific tribe, choose one and click "apply search."

The "apply search" button is blue when filters are applied.

You can further refine your search using these filters

Emissions data and facility count are provided by sector

Click here to change how you view the data

Click here to export data

Totals are provided for your specific search

Click an icon for facility-specific information

The screenshot shows the EPA FLIGHT web application interface. At the top, there are navigation links for 'Share', 'View U.S. GHG Inventory', and 'View Other GHGRP Data Products'. The main header reads '2018 Greenhouse Gas Emissions from Large Facilities'. Below this, there are search filters including 'Data Year' (set to 2018), 'Data Type' (set to All Emitters), and a search box for 'Find a Facility or Location'. There are also filters for 'Browse to a State' (set to Tribal Land) and 'Pick a Tribal Land' (Choose Tribe). A table below the filters shows emissions data and facility counts by sector. At the bottom, there is a map of the United States with facility locations marked. Callout boxes provide instructions on how to use the interface, such as selecting 'Tribal Land', applying filters, and clicking on facility icons for more information.

Sector	Power Plants	Petroleum and Natural Gas Systems	Refineries	Chemicals	Other	Minerals	Waste	Metals	Pulp and Paper	Total Reported Emissions
2018 GHG Emissions (Million Metric Tons CO ₂ e)	37	1.9	4.6	4.9	0.4	2.1	1.3	0	1.3	53
# of Reporting Facilities	22	27	6	7	7	14	17	1	5	101

Learn More

- To learn more about GHGRP data and reporting, visit www.epa.gov/ghgreporting
- For help using FLIGHT, visit <https://ccdsupport.com/confluence/display/ghgp/Home>
- GHGRP State and Tribal Factsheet: <https://www.epa.gov/ghgreporting/ghgrp-state-and-tribal-fact-sheet>

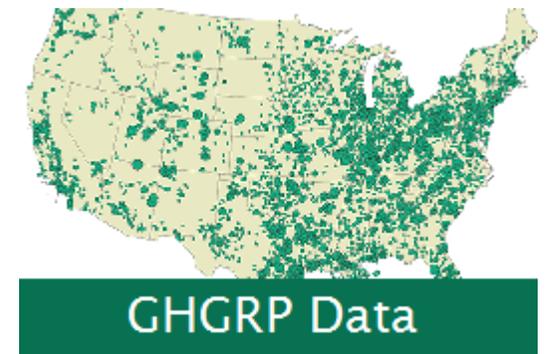
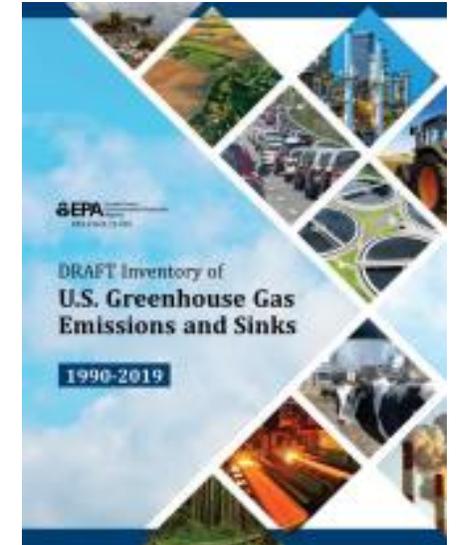
Additional Methodologies and Tools

- [Local Action Framework: Develop a GHG Inventory](#)
- [Local Government Operations Protocol](#)
- [Global Protocol for Community Wide GHG Inventories](#)
- [CPRG Tools and Technical Assistance: GHG Inventories](#)
- [CPRG Tools and Technical Assistance: GHG Emissions Projections](#)



Additional GHG Data Resources

- [Inventory of U.S. GHG Emissions and Sinks by State](#)
- [Facility Level Information on GreenHouse gases Tool \(FLIGHT\)](#)
- [EPA Emissions and Generation Integrated Database \(eGRID\) and Power Profiler](#)
- [Tribal Energy Atlas](#) (National Renewable Energy Lab)



Upcoming Trainings

All trainings will be 1-1.5 hours from 2-4 pm ET:

- **July 12, 2-3:00 PM ET:** Interagency Coordination and Meaningful Engagement
- **July 19, 2-3:30 PM ET:** Co-Pollutant Inventory and Future Projections Benefits Analysis
- **Week of July 24:** Quantified GHG Reduction Measures
- **Week of July 31:** EPA Tools used for Evaluation and Quantification of Reduction Measures
- **Week of August 7:** Workforce Planning Analysis
- **Week of August 14:** Low Income/Disadvantaged Communities Benefits Analysis
- **Week of August 28:** Meaningful Engagement: Update and Technical Resources

Climate Innovation Teams (CITs)

- Opportunity for peer-to-peer technical assistance, collaboration, and mentoring, and sharing of case studies, best practices, and lessons learned
- Teams will be created based on workplan elements, EPA tools, key CPRG sectors, and grantee needs
- Led by EPA subject matter experts
- CITs will be launched late summer/early fall via Teams